Individual-Profile

Dr. Khirod Boruah

Assistant Professor, Department of Mathematics

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Educational Qualification

➢ **B.Sc.** in Mathematics from North Lakhimpur College under Dibrugarh University, 2000.

➢ **M.Sc.** in Mathematics from Dibrugarh University, 2002.

➢ **M.Phil.** from Madurai Kamaraj University, Tamilnadu, 2010.

➢ **Ph.D.** on Sequence Spaces Over Non-Newtonian Calculus from Rajiv Gandhi University, Itanagar, 2017.

➢ **B.Ed.** from Lakhimpur Post Graduate Training College under Dibrugarh University, 2019.

Other Qualifications/Eligibilities

➢ Cleared **State Level Eligibility Test (SLET)** for Lectureship, NE Region, 2016.

➢ Cleared **Graduate Aptitude Tests in Engineering (GATE)**, conducted by Indian Institute of Technology, 2011.

➢ **Diploma in Computer Application** from Sun-Infosys, Guwahati, 2010.

➢ **B. Music (Vocal)** under Sarbabhararatiya Sangeet O Sanskriti Parishad, 2018.

➢ Cleared **Teacher Eligibility Test** (High School), Assam, 2013.

Teaching Experiences

1. Lecturer (contractual) in Madhabdev College, Lakhimpur from 01.08.2005 to 31.10.2007.

2. Graduate Teacher (Science) at Narayanpur Higher Secondary School, Lakhimpur from 14-08-2010 to 17-02-2014.

3. Graduate Teacher (Science) at Laluk Academy High School, Lakhimpur from 18-02-2014 to 20-12-2020.

4. Assistant professor, Department of Mathematics, Jengraimukh College since 21-12-2020.

Research Area & Interests

Non-Newtonian Calculus, Sequence Space, Time-Scale Calculus.

List of Research Publications

1. An anageometric time scale calculus and its some basic applications, K. Boruah, B. Hazarika, J. Math. Anal. Appl., https://doi.org/10.1016/j.jmaa.2024.128691, Vol. 541(2025), 128691.

2. Some basic properties of bigeometric calculus and its applications in numerical analysis, K. Boruah, B. Hazarika, Afr. Mat., https://doi.org/10.1007/s13370-020-00821-1 , ISSN: 1012-9405, Vol. 32, 2021, Pp. 211-227.

3. Solvability of differential equations by numerical methods, K. Boruah, B. Hazarika, A. E. Bashirov, Bol. Soc. Paran. Mat., ISSN: 0037-8712, https://doi.org/10.5269/bspm.39444 , Vol. 39(2), 2021, Pp. 203-222.

4. Bigeometric Integral Calculus, K. Boruah, B. Hazarika, TWMS Journal of Mathematics, ISSN: 2146-1147, https://jaem.isikun.edu.tr/web/index.php/archive/370-jaem-vol8-no2 , 8(2), 2018, Pp. 374-385.

5. G-Calculus, K. Boruah, B. Hazarika, TWMS Journal of Mathematics, https://jaem.isikun.edu.tr/web/index.php/archive/332-jaem-vol8-no1 , ISSN: 2146-1147, Vol. 8(1), 2018, Pp. 94-105.

6. Application of geometric calculus in numerical analysis and difference sequence spaces, K. Boruah, B. Hazarika, J. Math. Anal. Appl., https://doi.org/10.1016/j.jmaa.2016.12.066 , ISSN: 0022–247X, Vol. 449, 2017, Pp. 1265-1285.

7. On some generalized geometric difference sequence spaces, K. Boruah, B. Hazarika, Proyecciones Journal of Mathematics, http://dx.doi.org/10.4067/S0716-09172017000300373 ISSN: 0716-0917, Vol. 36(3), 2017, Pp. 373-395.

8. On some basic properties of geometric real sequences, K. Boruah, B. Hazarika, International Journal of Maths. Trends & Technology, ISSN: 2231-5373, Vol. 46(2), 2017, Pp. 111-117.

9. Matrix transformation between geometric difference sequence spaces, K. Boruah, B. Hazarika, International Journal of Recent and Innovation Trends in Computing and Communication, ISSN: 2321-8169, Vol. 5(6), 2017, Pp. 842-851.

10. G-Progressions and G-Magic Squares, K. Boruah, B. Hazarika, J. Assam Acad. Math., ISSN: 2229-3884, Vol. 9, 2019, Pp. 100-113.

Important Links

ResearchGate ID : [Click the link here >>](#)

GoogleScholar ID : [Click the link here >>](#)

ORCiD   : [Click the link here >>](#)

Book Chapters and Proceedings

➢ **Edited Book:** Introduction to Volterra and Fredholm Integral Equations, ISBN- 978-81-933198-2-6, Madhabdev Mahavidyalaya Prakashan, 2017.

➢ **Book Chapters:**

1. **Geometric sequence spaces and its basic properties**, Recent Advances in Multidisciplinary Research (Research Book), ISBN- 81-8324-984-1, Mittal Publications, 2020.

2. **Geometric-Arithmetic Progressions and Bigeometric Progressions**, A Book on Recent Scientific Research (Research Book), ISBN- 978-81-947664-7-6, JD Printers & Publication, Guwahati, 2020.

3. **Matrix Transformation Between Geometric Difference Sequence Space,** Mathstatika**, ISBN- 9781234567897, Madhabdev University, 2020**.

4. Chapter name **Topology on Geometric Sequence Spaces**, book name **Approximation Theory, Sequence Spaces and Applications, Industrial and Applied Mathematics**, https://doi.org/10.1007/978-981-19-6116-8_1 Springer, 2022.

1. 'Difference Sequence Spaces and Non-Newtonian Calculus' presented in UGC-sponsored National Conference on **Recent Trends of Mathematics and its Applications** organized by Department of Mathematics, Rajiv Gandhi University, Itanagar, May 26 & 27, 2014.

2. 'Geometric Difference Sequence Spaces and its Dual Spaces' presented in UGC sponsored national seminar on **Recent Trends of Mathematics and its Applications** organized by Department of Mathematics, Rajiv Gandhi University, Itanagar, November 6 & 7, 2015.

3. 'Geometric Calculus and its Application in Numerical Interpolations' presented in UGC-sponsored national seminar on **RTAMMPNS** organized by the Department of Mathematics, Dhakuakhana College, February 4 & 5, 2016.

4. 'Bigeometric Integral Calculus and Some Applications' presented at the **National Conference on Advances in Mathematical Sciences** organized by the Department of Mathematics, Gauhati University, 22-23 December 2016.

5. Numerical Methods for Solvability of Bigeometric Differential Equations presented in UGC-sponsored national seminar on **Mathematical Modeling on Applied Sciences** organized by the Department of Mathematics, Dibrugarh University, March 14, 2017.

6. Non-Newtonian Progressions and Non-Newtonian Magic Squares presented in UGC sponsored national seminar on **Mathematical & Application in Sciences, Engineering & Technology** organized by the Department of Mathematics, Rajiv Gandhi University, Itanagar, March 25 & 26, 2019.

7. Matrix Transformation between geometric difference sequence spaces presented in Department of Mathematics, Tripura University, "**International Seminar on Recent Advances in Mathematics and its Application-2019**, 16-18 July 2019.

8. An Introduction to Bigeometric Time Scale Calculus and its Applications in Mathematical Modelling Using Maple and MATLAB, presented at the **International Conference on Non-linear Analysis and Application-2022** organized by Assam Don Bosco University, November 22 & 23, 2022.

9. Anageometric Time Scale Calculus: An Introduction and Application, presented in **International Conference on Nonlinear Analysis and Computational Techniques**

(ICNACT-2024), organized by the School of Advanced Sciences and Languages (SASL), VIT Bhopal University in collaboration With the Institute of Physics and Mathematics, Technological University of the Mixteca, Mexico, 8-10 August, 2024.

10. A aper entitled 'Ordinary and G-Magic Squares and their application in System of Equation', presented in the **International Conference on Emerging Trends in Basic and Applied Sciences** organized by Faculty of Sciences in association with IQAC, D.D.R. College, Chabua, Assam held on 8th & 9th August 2025.

Training Programme/Workshop Attended

1. A weeklong online **FDP** on 'Implementation of NEP 2020 in Higher Education Institutions' from 26th April to 2nd May, 2023 organized by the Teaching Learning Centre (TLC), Tezpur University, Assam under PMMMNMTT Scheme, Ministry of Education, Government of India.

2. Two-week Online **Refresher Course** in Applicable Mathematics from 26 July to 08 August 2022 organized by the Teaching Learning Centre (TLC), Ramanujan College, University of Delhi.

3. **Orientation Programme** for 'Faculty in Universities/colleges/Institutes of Higher Education' in Teaching Learning Centre, the Ramanujan College University of Delhi under the aegis of Ministry of Education Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching from May 18-17 June 2021 and obtained Grade A$^+$.

4. Two-week **Refresher Course** in "Mathematics" organized by "Department of Mathematics, the Ramanujan College" University of Delhi under the aegis of Ministry of Education, Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching, from 16-03-2021 to 30-03-2021 and obtained Grade A$^+$.

5. **7 Days Workshop on Hands-on Machine Learning using Python Programming** organized by the Department of Information Technology, Gauhati University, funded by TEQIP-III (GUIST, Gauhati University) from 16th to 22nd August 2020.

6. **FDP** on ''Moodle Learning Management System'' organized by B.H. College with course material provided by Spoken Tutorial Project, IIT Bombay from 19-06-2021 to 25-06-2021.

7. Two-day **Science Teachers' Training Programme** organized by Assam Science Technology & Environment Council, 14-15 June 2012 at Lakhimpur.

8. Ten-day **Teachers Training on Mathematics, Adolescence, Gender Issues and CWSN** organized by RMSA, March 9- March 28, 2016 at Laluk HS School, Lakhimpur.

9. Five-day **North-East Summer Workshop in Analysis and Probability-2016** organized by the Department of Mathematics, Rajiv Gandhi University in Collaboration with ISI, Bangalore, May 31- June 4, 2016.

10. Ten-day **Teachers Training on Mathematics, Adolescence, Gender Issues and CWSN** organized by RMSA, January 3- January 12, 2017 at Bangalmara HS School, Lakhimpur.

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